

# Nuclear Review

1. Nuclear reactions are useful in many different ways, list 4 uses of nuclear reactions:

- 1.
- 2.
- 3.
- 4.

2. Nuclear Energy could be very useful, but there are drawbacks to its use, make a table of pros and cons of its use:

Pros	Cons

3. List the 3 types of decay and write the symbol for the particle that is released:

Type of decay	Particle

4. Which type of decay is the most dangerous? \_\_\_\_\_

5. What type of decay can be stopped by paper? \_\_\_\_\_

6. What type of decay can be stopped by foil? \_\_\_\_\_

7. What type of decay can be stopped by lead, steel or concrete? \_\_\_\_\_

8. Write the equation for the following decays:

a. The alpha decay of Americium-250

b. The alpha decay of Thorium-238

c. The beta decay of Francium-225

d. The beta decay of Potassium-43

9. Define half-life: \_\_\_\_\_

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10.

a. Iodine-131 is used to destroy thyroid tissue in the treatment of an overactive thyroid. The half-life of iodine-131 is 8 days. If a hospital receives a shipment of 200 g of iodine-131, how much I-131 would remain after 32 days?

11.

c. Mercury -197 is used for kidney scans and has a half-life of 3 days. If the 32 grams of mercury-197 is ordered, but takes 15 days to arrive, how much would arrive in the shipment?